CLAIMS

A wireless communication system comprising:

2   a plurality of base stations, each configured to transmit a PN encoded pilot signal at a different time offset than other base stations;

4   and

at least one remote unit configured to perform a coarse search of a

6   PN space and to use the results of the coarse search to select fine search parameters for use in a second search of selected portions of PN space.

2.   The wireless communication system of Claim 1 wherein during

2   the coarse search, a number of non-coherent passes is reduced in comparison with the second search.

3.   The wireless communication system of Claim 1 wherein during

2   the coarse search, an integration interval is reduced in comparison with the fine search.

4.   The wireless communication system of Claim 1 wherein if, during

2   the coarse search, sufficient energy is detected at a first offset corresponding to a first PN encoded pilot signal of a first base station, a first fine search

4   parameter is selected to specify an expected range of PN offsets over which the first PN encoded pilot signal is likely to be received.

5.   A remote unit in a wireless communication system comprising:

2   a search engine configured to receive search parameters, conduct a search for signals in the wireless communication system and to output

4   search results;

a memory configured to receive and store the search results from

6   the search engine and to output the search results; and

a controller configured to pass search parameters to the search

8 engine, and to receive the search results from the memory;

wherein the search engine performs searches using the search

10 parameters passed by the controller, the search parameters comprising:

a set of coarse search parameters used to search a PN space;

12 and

a set of fine search parameters used to search portions of

14 PN space most likely to contain a pilot signal, the likelihood of the space

containing a pilot signal being determined by the controller after

16 evaluating results of the coarse search.

6. The wireless communication system of Claim 1 wherein a number

2 of non-coherent passes in the set of course search parameters is less than in the

set of fine search parameters.

7. The wireless communication system of Claim 1 wherein an

2 integration interval in the set of course search parameters is less than in the set

of fine search parameters.

8. A method of initially acquiring a base station by a wireless remote

2 unit, the method comprising:

selecting a set of coarse search parameters;

4 conducting a course search of an entire PN space for a pilot signal

according to the coarse search parameters;

6 storing results of the coarse search in a memory;

examining the results of the coarse search stored in memory to

8 select portions of the entire PN space upon which to conduct fine

searching according to fine search parameters; and

10 conducting a fine search of the selected portions of the entire PN

space according to the fine search parameters.

9. The wireless communication system of Claim 1 wherein a number

2 of non-coherent passes in the course search is less than in the fine search.

10. The wireless communication system of Claim 1 wherein an

2 integration interval in the course search is less than in the fine search.

11. The wireless communication system of Claim 1 wherein if, during

2 the course search, sufficient energy is detected at a first offset corresponding to

a first PN encoded pilot signal of a first base station, a first fine search

4 parameter is selected to specify an expected range of PN offsets over which the

first PN encoded pilot signal is likely to be received.

12. The method of Claim 1 further comprising storing all measured

2 signal levels identified during the coarse search which exceed a threshold level

and a corresponding PN offsets.

13. A remote unit in a wireless communication system configured to

2 perform a search for a pilot signal, the remote unit comprising:

means for selecting a set of coarse search parameters;

4 means for conducting a course search of an entire PN space for a

pilot signal according to the coarse search parameters;

6 means for storing results of the coarse search;

means for examining the stored results of the coarse search to

8 select portions of the entire PN space upon which to conduct fine

searching according to fine search parameters; and

10 means for conducting a fine search of the selected portions of the

entire PN space according to the fine search parameters.

14. A method of selecting search parameters used by a remote unit to

2 search for a pilot signal, the method comprising:

selecting a set of coarse search parameters, the act of selecting

4   comprising:

dividing a PN space into equal segments;

6   selecting a number of noncoherent passes to between one

and eight; and

8   selecting an integration interval to be within a range of 0.1

to 0.06 milliseconds; and

10   evaluating the search results obtained during the coarse search to

select a set of fine search parameters concentrated on portions of the PN

12   space that have a higher probability of containing a viable pilot signal

than other portions of the PN space.

15.   A method of searching in a wireless communication system the

2   method comprising:

transmitting a PN encoded pilot signal from a plurality of base

4   stations, each base station configured to transmit said PN encoded pilot

signal at a different time offset than other base stations;

6   performing a coarse search of a PN space by at least one remote

unit; and

8   selecting fine search parameters in response to results of the

search, said fine search parameters for use in a second search of selected

10   portions of PN space.

16.   The method of Claim 1 wherein during the coarse search, a

2   number of non-coherent passes is reduced in comparison with the second

search.

17.   The method of Claim 1 wherein during the coarse search, an

2   integration interval is reduced in comparison with the fine search.

18. The method of Claim 1 wherein if, during the coarse search, sufficient energy is detected at a first offset corresponding to a first PN encoded pilot signal of a first base station, a first fine search parameter is selected to specify an expected range of PN offsets over which the first PN encoded pilot signal is likely to be received.